

Complete Summary

GUIDELINE TITLE

Physical activity and public health in older adults: recommendation from the American College of Sports Medicine and the American Heart Association.

BIBLIOGRAPHIC SOURCE(S)

Nelson ME, Rejeski WJ, Blair SN, Duncan PW, Judge JO, King AC, Macera CA, Castaneda-Sceppa C, American College of Sports Medicine, American Heart Association. Physical activity and public health in older adults: recommendation from the American College of Sports Medicine and the American Heart Association. *Circulation* 2007 Aug 28;116(9):1094-105. [67 references] [PubMed](#)

GUIDELINE STATUS

This is the current release of the guideline.

It updates a previously published version: Pate RR, Pratt M, Blair SN, Haskell WL, Macera CA, Bouchard C, Buchner D, Ettinger W, Heath GW, King AC, et al. Physical activity and public health. A recommendation from the Centers for Disease Control and Prevention and the American College of Sports Medicine. *JAMA*. 1995 Feb 1;273(5):402-7.

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SCOPE

DISEASE/CONDITION(S)

General health

GUIDELINE CATEGORY

Counseling
Prevention

CLINICAL SPECIALTY

Cardiology
Family Practice
Geriatrics
Internal Medicine
Preventive Medicine
Sports Medicine

INTENDED USERS

Patients
Physicians
Public Health Departments

GUIDELINE OBJECTIVE(S)

- To issue a recommendation on the types and amounts of physical activity needed to improve and maintain health in older adults
- To explain and clarify the additions and modifications made to the ACSM/AHA recommendation for adults
- To discuss the promotion of physical activity in older adults so as to provide guidance about appropriate types and amounts of physical activity

TARGET POPULATION

All adults aged 65+ years, and adults aged 50 to 64 with clinically significant chronic conditions or functional limitations that affect movement ability, fitness, or physical activity

INTERVENTIONS AND PRACTICES CONSIDERED

1. Moderate-intensity exercise (e.g., brisk walk)
2. Vigorous-intensity exercise (e.g., jogging)
3. Light-intensity exercise (self care, cooking, casual walking, shopping)
4. Muscle strengthening exercise
5. Duration of exercise

MAJOR OUTCOMES CONSIDERED

- Metabolic equivalent energy expenditure
- Morbidity and mortality

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The expert panel reviewed existing consensus statements and relevant evidence from primary research articles and reviews of the literature.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

- A. Data derived from multiple randomized clinical trials
- B. Data derived from a single randomized trial or from nonrandomized studies
- C. Consensus opinion of experts

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

In 1999, an expert panel was convened with the assistance and support of the International Life Sciences Institute (<http://www.ilsa.org>). The panel had expertise in public health, behavioral science, epidemiology, exercise science, medicine, and gerontology. The panel was initially charged with issuing a comprehensive preventive recommendation on physical activity for older adults that addressed aerobic, muscle-strengthening, flexibility, and balance activities, as well as the promotion of physical activity. The panel was instructed to base its recommendations on a review of primary research articles, literature reviews, existing preventive recommendations, and therapeutic recommendations.

Panel members wrote background papers addressing components of the proposed recommendation, using their judgment to develop a strategy for locating and analyzing relevant evidence. The panelists relied as appropriate on earlier reviews of evidence, without repeating them. The panel did not undertake a full review of the evidence of the benefits of aerobic activity in the older population, because previous evidence-based recommendations for aerobic activity applied to all adults. But the panel considered whether modifications or clarifications were needed when applying these recommendations to older adults who commonly have chronic diseases, low fitness levels and/or functional limitations. Recommendations for muscle-strengthening exercises, which applied to older adults, had also been issued by the 1990s. In 2001, a consensus statement dealt with the role of balance exercise in preventing falls among older adults. In that same year, an extensive evidence summary and consensus statement was published from a Centers for Disease Control and Prevention(CDC)/Health Canada Expert Panel meeting entitled "Dose-Response Aspects of Physical Activity and Health." Three years earlier, the American College of Sports Medicine (ACSM) had published positions stands for older adults and for healthy adults, and ACSM regularly updated its guidelines for exercise prescription. Late in the process, the panel had access to draft conclusions of an expert panel convened by the University of Illinois at Chicago that had reviewed the evidence on the health effects of physical activity in older adults.

The background papers developed by the expert panel were discussed and critiqued by all members of the panel. In 2001, following regular discussions, the panel completed a draft of a preventive recommendation. Shortly thereafter, ACSM/American Heart Association (AHA) agreed to update the 1995 CDC/ACSM recommendation for adults. Issuing a separate older adult recommendation had the risk of causing confusion, if it was not consistent with the updated adult recommendation. Hence, the panel was given a revised charge of issuing an older adult recommendation, which was consistent with the updated recommendation for adults. Both recommendations were to be issued simultaneously.

Given drafts of an update to the 1995 recommendation for adults, in 2004 the panel on older adults synthesized a companion recommendation.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Class I: Conditions for which there is evidence and/or general agreement that a given procedure or treatment is useful and effective (should; is recommended; is indicated; is useful. effective, beneficial)

Class II: Conditions for which there is conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of a procedure or treatment

IIa: Weight of evidence/opinion is in favor of usefulness/efficacy (is reasonable; can be useful, effective or beneficial; is probably recommended or indicated)

IIb: Usefulness/efficacy is less well established by evidence/opinion (may/might be considered, may/might be reasonable, usefulness/effectiveness is unknown, unclear/uncertain or not well established)

Class III: Conditions for which there is evidence and/or general agreement that the procedure/treatment is not useful/effective and in some cases may be harmful (is not recommended; is not indicated; should not; is not useful/effective, beneficial; may be harmful)

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

- Manuscripts describing both adult and older adult recommendations were circulated for comments, revised, and edited for consistency, prior to review and approval by the American College of Sports Medicine (ACSM) and the American Heart Association (AHA).
- This document was approved by the ACSM on January 5, 2007, and AHA Science Advisory and Coordinating Committee on March 24, 2007.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Levels of evidence (A-C) and classification of recommendations (I-III) are defined at the end of the "Major Recommendations" field.

The following recommendation for older adults describes the amounts and types of physical activity that promote health and prevent disease. The recommendation applies to all adults aged 65+ years, and to adults aged 50 to 64 with clinically significant chronic conditions or functional limitations that affect movement ability, fitness, or physical activity. For the purposes of this recommendation, a chronic condition is "clinically significant" if a person receives (or should receive) regular medical care and treatment for it. A functional limitation is "clinically significant" if it impairs the ability to engage in physical activity. Thus, adults age 50 to 64 with chronic conditions that do not affect their ability to be active (e.g., controlled hypertension) would follow the adult recommendation. The parts of the recommendation below that are not italicized repeat the recommendation for adults, meaning these parts apply to all adults; the italicized parts are specific for older adults.

Regular physical activity, including aerobic activity and muscle-strengthening activity, is essential for healthy aging. This preventive recommendation specifies how older adults, by engaging in each recommended type of physical activity, can reduce the risk of chronic disease, premature mortality, functional limitations, and disability.

Aerobic Activity

To promote and maintain health, older adults need moderate-intensity aerobic physical activity for a minimum of 30 min on five days each week or vigorous-intensity aerobic activity for a minimum of 20 min on three days each week. **[I (A)]** Also, combinations of moderate- and vigorous-intensity activity can be performed to meet this recommendation. **[IIa (B)]** *Moderate-intensity aerobic activity involves a moderate level of effort relative to an individual's aerobic fitness. On a 10-point scale, where sitting is 0 and all-out effort is 10, moderate-intensity activity is a 5 or 6 and produces noticeable increases in heart rate and breathing. On the same scale, vigorous-intensity activity is a 7 or 8 and produces large increases in heart rate and breathing. For example, given the heterogeneity of fitness levels in older adults, for some older adults a moderate-intensity walk is a slow walk, and for others it is a brisk walk.* This recommended amount of aerobic activity is in addition to routine activities of daily living of light-intensity (e.g., self care, cooking, casual walking or shopping) or moderate-intensity activities lasting less than 10 min in duration (e.g., walking around home or office, walking from the parking lot).

Muscle-Strengthening Activity

To promote and maintain health and physical independence, older adults will benefit from performing activities that maintain or increase muscular strength and endurance for a minimum of two days each week. **[IIa (A)]** It is recommended that 8 to 10 exercises be performed on two or more nonconsecutive days per week using the major muscle groups. *To maximize strength development, a resistance (weight) should be used that allows 10 to 15 repetitions for each exercise. The level of effort for muscle-strengthening activities should be moderate to high. On a 10-point scale, where no movement is 0, and maximal effort of a muscle group is 10, moderate-intensity effort is a 5 or 6 and high-intensity effort is a 7 or 8.* Muscle-strengthening activities include a progressive-weight training program, weight bearing calisthenics, and similar resistance exercises that use the major muscle groups.

Benefits of Greater Amounts of Activity

Participation in aerobic and muscle-strengthening activities above minimum recommended amounts provides additional health benefits and results in higher levels of physical fitness. **[I (A)]** *Older adults should exceed the minimum recommended amounts of physical activity if they have no conditions that preclude higher amounts of physical activity, and they wish to do one or more of the following; (a) improve their personal fitness, (b) improve management of an existing disease where it is known that higher levels of physical activity have greater therapeutic benefits for the disease, and/or (c) further reduce their risk for premature chronic health conditions and mortality related to physical inactivity.* In addition, to further promote and maintain skeletal health, older adults should engage in extra muscle strengthening activity and higher-impact weight-bearing activities, as tolerated. **[IIa (B)]** To help prevent unhealthy weight gain, some older adults may need to exceed minimum recommended amounts of physical activity to a point that is individually effective in achieving energy balance, while considering diet and other factors that affect body weight. **[IIa (B)]**

Flexibility Activity

To maintain the flexibility necessary for regular physical activity and daily life, older adults should perform activities that maintain or increase flexibility on at least two days each week for at least 10 min each day. [IIb (B)]

Balance Exercise

To reduce risk of injury from falls, community-dwelling older adults with substantial risk of falls (e.g., with frequent falls or mobility problems) should perform exercises that maintain or improve balance. [IIa (A)]

Integration of Preventive and Therapeutic Recommendations

Older adults with one or more medical conditions for which physical activity is therapeutic should perform physical activity in the manner that effectively and safely treats the condition(s). [IIa (A)] So as to prevent other conditions from developing, older adults should also perform physical activity in the manner recommended for prevention as described herein. When chronic conditions preclude activity at minimum recommended levels for prevention, older adults should engage in regular physical activity according to their abilities and conditions so as to avoid sedentary behavior.

Activity Plan

Older adults should have a plan for obtaining sufficient physical activity that addresses each recommended type of activity. [IIa (C)] In addition, to specifying each type of activity, care should be taken to identify, how, when, and where each activity will be performed. Those with chronic conditions for which activity is therapeutic should have a single plan that integrates prevention and treatment. For older adults who are not active at recommended levels, plans should include a gradual (or stepwise) approach to increase physical activity over time using multiple bouts of physical activity (≥ 10 min) as opposed to continuous bouts when appropriate. Many months of activity at less than recommended levels is appropriate for some older adults (e.g., those with low fitness) as they increase activity in a stepwise manner. Older adults should also be encouraged to self-monitor their physical activity on a regular basis and to re-evaluate plans as their abilities improve or as their health status changes.

Definitions:

Levels of Evidence

- A. Data derived from multiple randomized clinical trials
- B. Data derived from a single randomized trial or from nonrandomized studies
- C. Consensus opinion of experts

Classification of Recommendations

Class I: Conditions for which there is evidence and/or general agreement that a given procedure or treatment is useful and effective (should; is recommended; is indicated; is useful, effective, beneficial)

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CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is specifically stated for selected recommendations (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- The benefits of regular physical activity in older adults are extensive. As noted in the adult recommendation, regular physical activity reduces risk of cardiovascular disease, thromboembolic stroke, hypertension, type 2 diabetes mellitus, osteoporosis, obesity, colon cancer, breast cancer, anxiety, and depression. Of particular importance to older adults, there is substantial evidence that physical activity reduces risk of falls and injuries from falls, prevents or mitigates functional limitations, and is effective therapy for many chronic diseases.
- Clinical practice guidelines identify a substantial therapeutic role for physical activity in coronary heart disease, hypertension, peripheral vascular disease, type 2 diabetes, obesity, elevated cholesterol, osteoporosis, osteoarthritis, claudication, and chronic obstructive pulmonary disease.
- Clinical practice guidelines identify a role for physical activity in the management of depression and anxiety disorders, dementia, pain, congestive heart failure, syncope, stroke, prophylaxis of venous thromboembolism, back

pain, and constipation. There is some evidence that physical activity prevents or delays cognitive impairment and disability, and improves sleep.

POTENTIAL HARMS

Risk of Physical Activity

- Vigorous activity has higher risk of injury and lower adherence.
- Chronic conditions increase risk of activity-related adverse events (e.g., heart disease increases risk of sudden death and osteoporosis increases risk of activity-related fractures). Activity-related musculoskeletal injuries act as a major barrier to regular physical activity. While these considerations lead to more emphasis on risk management, there is insufficient research on effective strategies to prevent injuries.

QUALIFYING STATEMENTS

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In its recommendation for older adults, the panel used terms as they are defined conventionally. With the exception that only exercise is recommended to improve balance, the recommendation uses "physical activity" to indicate that exercise programs are not the only way to meet the recommendation. Additionally, because of its focus on older adults, the text uses the terms impairments, functional limitations, and disability. Impairments refer to abnormalities at the level of tissues, organs, and body systems, whereas functional limitations are deficits in the ability to perform discrete tasks such as climbing stairs. Disability on the other hand is a functional limitation expressed in a social context such as the inability to clean one's home or to shop independently.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness
Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Nelson ME, Rejeski WJ, Blair SN, Duncan PW, Judge JO, King AC, Macera CA, Castaneda-Sceppa C, American College of Sports Medicine, American Heart Association. Physical activity and public health in older adults: recommendation from the American College of Sports Medicine and the American Heart Association. *Circulation* 2007 Aug 28;116(9):1094-105. [67 references] [PubMed](#)

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1995 (revised 2007 Aug)

GUIDELINE DEVELOPER(S)

American College of Sports Medicine - Medical Specialty Society
American Heart Association - Professional Association

SOURCE(S) OF FUNDING

American Heart Association

GUIDELINE COMMITTEE

American College of Sports Medicine

American Heart Association

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Writing Group Disclosures

Writing Group Member	Employment	Research Grant	Other Research Support	Speakers' Bureau/Honoraria	Ownership Interest	Consultant/Advisory Board	Other
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Writing Group Member	Employment	Research Grant	Other Research Support	Speakers' Bureau/ Honoraria	Ownership Interest	Consultant/ Advisory Board	Other
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This table represents the relationships of writing group members that may be perceived as actual or reasonably perceived conflicts of interest as reported on the Disclosure Questionnaire, which all members of the writing group members are required to complete and submit. A relationship is considered to be "significant" if (a) the person receives \$10 000 or more during any 12-month period, or 5% or more of the person's gross income; or (b) the person owns 5% or more of the voting stock or share of the entity, or owns \$10 000 or more of the fair market value of the entity. A relationship is considered to be "modest" if it is less than "significant" under the preceding definition.

*Modest

**Significant

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GUIDELINE AVAILABILITY

Electronic copies: Available from the [American Heart Association Web site](#).

Print copies: Available from the American Heart Association, Public Information, 7272 Greenville Ave, Dallas, TX 75231-4596; Phone: 800-242-8721

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI Institute on January 9, 2008. The information was verified by the guideline developer on February 12, 2008.

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